Spring 2007

CEG 434/634-01: Concurrent Software Design

Yong Pei
Wright State University - Main Campus, yong.pei@wright.edu

CEG 434/634
Concurrent Software Design

Syllabus

Spring Quarter, 2007

Time/Place: Lecture: 1:30 – 2:35 PM, M/W/F, OH 303

Instructor: Dr. Yong Pei, 489 Joshi Research Center
Tel. 937-775-5111, Email: yong.pei@wright.edu
Office Hours: 1:00-3:00 pm, Tu.

GTA: Mr. Paul Bender, 326 Russ Engineering Center
Email: bender.13@wright.edu
Office Hours: 2:45-3:45 pm, M/W.

Prerequisite: CS400, CEG433/633, Operating Systems.
Expected background: discrete mathematics, data structure, C or C++ programming experience in UNIX.

Course Description: This course provides an introduction to concurrent program design in the UNIX environment. Classical problems of synchronization, concurrency, and their solutions are examined through course projects and through readings on operating system design.

Text Books: *Required*: Operating System Concepts, 6th or 7th Ed, Silberschatz and Galvin, Addison-Wesley, 2002.
Required: Unix Systems Programming: Communication, Concurrency and Threads, 2nd Ed., Robbins and Robbins, Prentice Hall, 2003.
References: Interprocess Communications in Linux: The Nooks and Crannies, John S. Gray, Prentice Hall, 2003.

Website: CEG434-634 in WebCT.

Grading: Programming assignment – 35 %
Homework – 10%
Midterm Exam – 25%
Final – 30%

Lectures:

The following tentative schedule defines in greater details what material is covered in the course and when it is covered.

Week	Reading	Contents
1	Robbins Ch. 1 Silberschatz Ch. 1	Welcome and introduction
2	Silberschatz Ch. 4, 6 Robbins Ch. 2	Process management, process scheduling, CPU Scheduling
3	Robbins Ch. 3, 4	UNIX I/O, UNIX process control
4	Robbins Ch. 6	Basic UNIX inter-process communication **Problem Session #1 (Friday)**
5	Robbins Ch. 8	Asynchronous events – UNIX signals **Midterm Exam (Friday)**
6	Robbins Ch. 18,20	Client server computing **Project #1 Due**
7	Robbins Ch. 18,20 Gray Ch. 10	Inter-process communication with socket
8	Silberschatz Ch. 5 Robbins Ch. 12	Threads **Project #2 Due**
9	Silberschatz Ch. 6 Robbins Ch.13,14	Process synchronization (critical sections, semaphores, etc.) **Problem Session #2 (Friday)**
10	Siberschatz Ch.8 Robbins Ch. 14	Deadlocks **Final Exam (Friday)**
11		**Project #3 Due**